

Wagenvoort, Rien; Hurst, Christopher

## Article

# How well do European loan markets work? Some insights from the financial structure of SMEs in three countries

EIB Papers

## Provided in Cooperation with:

European Investment Bank (EIB), Luxembourg

*Suggested Citation:* Wagenvoort, Rien; Hurst, Christopher (1999) : How well do European loan markets work? Some insights from the financial structure of SMEs in three countries, EIB Papers, ISSN 0257-7755, European Investment Bank (EIB), Luxembourg, Vol. 4, Iss. 2, pp. 64-86

This Version is available at:

<https://hdl.handle.net/10419/44779>

### Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

### Terms of use:

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# Recent Research

by the Chief Economist's Department

## How well do European loan markets work? Some insights from the financial structure of SMEs in three countries

Rien Wagenvoort & Christopher Hurst

### Summary

The precarious employment situation in the EU has given rise to public policies that aim at giving small and medium-sized enterprises (SMEs) better access to finance. SMEs may face difficulties due to information problems and other inefficiencies in loan markets. However, the European evidence on the magnitude of this problem is limited.

The purpose of this paper has been to explore the factors that determine the gearing of a sample of SMEs in France, Italy and the UK. Since many factors are potentially involved, a regression analysis is needed to untangle the individual effect of any particular factor. The explanatory power of our model is high compared with previous studies.

A striking result is the similarity of the findings for France and the UK. In both countries, bankers prefer (to a similar extent) to lend against fixed assets and to companies with higher liquidity. We find no evidence of banking relationships developing over time that improve the availability of debt finance. On the contrary, in both countries higher profitability reduces gearing, as does company age (actually company size is significant in France, but this is correlated with age). This means that companies use retained earnings to lower the level of bank debt they carry.

In some recent studies it has been argued that SMEs are so constrained that they need to use trade credit to finance their investment projects. However, we find little change in liquidity between young and old firms and it appears unlikely that SMEs systematically use current liabilities to finance fixed assets.

Relationship banking could be of more importance in Italy, but the results point in different directions and it is difficult to arrive at a clear view. Still, the British and French results clearly indicate that the problems of asymmetric information between lenders and borrowers can go on for decades. This persistent market failure suggests that support for development capital for mature SMEs should be kept on the policy agenda. The paper comments very briefly on some of the policy options. Since larger banks are more likely to rely on financial ratios and credit scoring for SME loan approvals than smaller institutions, the consolidation of the European banking sector that is expected in the coming years is unlikely to alleviate the problems facing small businesses.

# How well do European loan markets work? Some insights from the financial structure of SMEs in three countries

*"A bank is a place that will lend you money  
if you can prove that you don't need it."*

*Bob Hope*

## 1. Introduction

Small and medium-sized enterprises (SMEs) are important for the provision of jobs in the European Union. Table 1 shows that two out of three workers in the EU are employed by firms with less than 250 employees. The EU region hosts almost 19 million small companies which on average employ only four people.

Labour productivity, as measured by value-added per occupied person, is considerably higher in large-scale enterprises (LSEs) than in SMEs. Remarkably, the share of labour costs in value-added increases as size falls (from large to medium to small) with the exception of very small firms (less than 10 employees). However, for these smallest enterprises, the wage bill is likely to decline because the entrepreneur and his family are not on the payroll rather than because labour is more productive. It is safe to conclude that SMEs employ more labour intensive production techniques than larger companies.

**Table 1.** Number and size of enterprises in the European Union, 1996

	SMEs	LSEs	Total
Number of enterprises (in thousands)	18,555	35	18,590
Employment (in million)	73.2	38.2	111.4
Average number of employees per firm	4	1035	6

Source: European Observatory for SMEs (1997), Table 1, p.14. Small and medium-sized enterprises (SMEs) have less than 250 employees, whereas large-scale enterprises (LSEs) are above this threshold.

Given the importance of SMEs for employment and the high unemployment rate in Europe, EU governments have implemented a range of policies to facilitate the start-up of new enterprises and to strengthen existing SMEs. These include education programs for entrepreneurs and ways of stimulating technology transfer. Another set of instruments is financial, and covers R&D subsidies, debt guarantee schemes, the provision of venture capital and the like.

This latter group of policies follows from concerns that SMEs find it difficult to finance their investments. While there is a widespread perception that SMEs do have difficulties in finding new equity investors or in borrowing from banks, there is surprisingly little European evidence that this is so. Surveys of businesses often find that funds are not sufficiently available to suit entrepreneurs. For example, the European Observatory for SMEs (1997) reports one survey where European firms were asked whether financial constraints would impede the expansion of their business in the long run. Around 30 percent of the interviewees responded that the availability of long-term finance, either debt or equity put a restriction on the growth of their businesses. Of course, simply asking views in this way can hardly be considered as hard proof. Indeed, one can imagine that managers have an incentive to over-state the problem.

---

*Rien Wagenvoort is an Economist, and Christopher Hurst is Head of Division in the Chief Economist's Department of the EIB. This paper draws on the work of an EIB research programme on the financing of SMEs. Other participants included Roman Arjona, Eric Perée and Pascale Viala.*

*The public perception that firms have difficulty in financing their investments is largely supported by the theoretical literature. Asymmetric information means that firms have a "pecking order" when choosing between sources of funds.*

### **The theoretical framework for SME finance**

However, the public perception that a problem exists is largely supported by the conclusions of theoretical literature. These emphasise the prevalence of imperfect information in financial markets. In particular, debt markets are generally characterised by asymmetric information since the borrower is better informed than the lender about the value of the project that will be undertaken. This means that the lender may restrict the borrower's use of debt because of problems of moral hazard and adverse selection (the seminal papers are by Jaffee and Russell, 1976, and Stiglitz and Weiss, 1981). In "normal" markets an excess of demand would make prices rise until demand and supply are equated. However, such an adjustment mechanism does not necessarily apply to financial intermediation since the price of credit may have sorting and incentive effects. The expected return on loans may increase initially with the interest rate charged but then may be decreasing since a higher price of capital may cause a rise in the riskiness of the pool of loans. This means that equilibrium credit rationing can arise where the lender is not willing to change interest rates and to supply more funds to borrowers even though credit is in excess demand. This is an extreme version of the problem. In practice, companies can continue to borrow, but banks require high levels of collateral, and may include a "risk premium" in the loan price that does not correctly reflect the creditworthiness of the underlying investment.

In addition to asymmetric information, debt may be more costly than internal sources due to transaction and bankruptcy costs. Therefore, in contrast to Modigliani and Millers' (1958) famous separability theorem, firms may have a "pecking order" or financing hierarchy when choosing between sources of funds. Firms prefer internal funds to external finance and, if internal funds are insufficient, debt instead of equity as a source of incremental funding for investment projects (e.g. see Fazzari *et al.*, 1988a, 1988b, and Myers and Majluf, 1984).

Information problems are likely to be more acute for small companies if only because the unit costs of assessing projects are relatively larger. One possible solution to this could be the formation of bank-firm relationships. After several periods of unviolated track record, the cost, collateral requirements, and availability of credit may become more favourable for the small firm (see, among others, Greenbaum *et al.*, 1989, Sharpe, 1990, and Boot and Thakor, 1994).

### **The empirical evidence**

The empirical literature to test these hypotheses is mainly North American. A number of studies have examined the impact of the characteristics of small firms on their leverage. For example, Walker (1991) shows that bank loans and trade credit may be used as substitutes, and that these different means of finance are related to sales. Constand *et al.* (1991) find that asset structure is an important determinant of the use of debt financing. They show that short-term debt is positively related to current assets, while long-term debt depends on fixed assets. Furthermore, leverage is found to be negatively related to profitability, suggesting that higher retained earnings are used to lower gearing. Such studies often support the view that there is a financial pecking order, though the overall picture is far from clear.

A second strand of the literature has tested the impact of the duration of the lender-borrower relationship on loan characteristics. Among these, Petersen and Rajan (1994) provide evidence that the length of a bank-firm relationship increases the availability of credit to small businesses in the US, but has no significant impact on loan rates. Berger and Udell (1995), also for the US, show that the

*The empirical evidence on European SME finance is patchy. Our goal is to find additional evidence on the way European debt markets work.*

cost of bank loans drawn against previously negotiated lines of credit is lower, and collateral is less frequently required, for firms with long-standing relationships with their banks. In one of the few studies on small firms in continental Europe, Degryse and Van Cayseele (1998) find the opposite affect. They find a significant *positive* correlation between the length of the banking relationship and the price of credit. This illustrates that developing a relationship with a particular bank may not necessarily be beneficial if this locks the company into that relationship (the company may find it difficult to turn to other lenders since its credit history is the private knowledge of the bank). Angelini *et al.* (1997) find a similar result for non-cooperative banks in Italy, but that, on the contrary, a long-term relationship yields below average lending rates for the members of cooperative banks. In general, these results are very patchy and highlight the poor information that is available on European SME finance.

### **The goals of this study**

The purpose of this paper is to examine the degree of agency and related problems that may exist in the market for loans to SMEs in Europe. We do this by investigating empirically the determinants of balance sheet gearing (defined as bank debt divided by bank debt plus shareholders' funds) for SMEs in three European countries (Italy, France and the United Kingdom). We look in particular at the role of key financial factors such as the availability of collateral, firm liquidity and profitability, while controlling for the type of company. We also examine the specific question of whether banking relationships develop over time in these countries. Our goal is to find additional evidence on the way European loan markets work.

The remainder of the paper is structured as follows: In the next section we describe the data and analyse the typical balance sheet of a sample of SMEs in each country. The third section presents the econometric approach. In the subsequent three sections we discuss the factors that determine the capital structure of SMEs in each of the countries in turn. The paper concludes with a summary of the key points and a brief review of the possible policy implications.

## **2. A broad description of SMEs in Italy, France and the United Kingdom**

To be consistent with most other empirical studies of a similar kind we have defined SMEs to be enterprises with no more than 500 employees. Box 1 contains further details of the other sample selection criteria used.

Table 2 gives some basic information on the sample of SMEs in the three countries. The average age of small firms across countries is more or less the same. A first observation is that the lifecycle of SMEs does not seem to differ much between countries (2). However, the Italian companies in the sample have balance sheets that on average are about five times larger than those of French or British firms. Note that this difference in size becomes even more apparent when we compare the median size across countries (3). Another difference is that the stock of tangible assets of older Italian SMEs keeps growing at a relatively high pace, whereas the growth in tangible assets slows down for older British SMEs, and the expansion of older French SMEs even comes to a standstill. We conclude that the nature of the Italian SMEs in the sample is different from the French and the British ones. Clearly, this should be taken into account when comparing capital structures.

---

2) Though there could be differences by company type within countries.

3) This large difference between the median and the average value of total assets within a certain country is due to major outliers in the data set.

### Box 1. Data on small business in Europe

The following panel data bases (obtained from Bureau Van Dijk, Brussels) were used: AIDA for Italy, DIANE for France, and FAME for the United Kingdom. The data set is confined to small and medium-sized enterprises (SMEs) and runs from 1992 to 1996 (in the case of Italy, data is only available for the period from 1992 to 1995). Companies that are active in the agricultural, forestry, fishing, financial industry or public administration are excluded from the sample. After selection by activity, the total number of firms with no more than 500 employees in the primary sample was equal to 41822 in Italy, 249 598 in France, and 86 148 in the UK. To focus the analysis on independent “entities”, co-operatives, foreign companies and firms in which another company owns equity were deleted, as were firms which were not *alive* for the whole sample period, companies which have no turnover, and companies which do not report data on the variables relevant for the analysis in any year of the sample period. Therefore, the final sample falls to 1283 Italian firms, 658 French firms, and 1374 British firms. Proprietorships and partnerships represent 12.6 percent and 8.2 percent of the firms in Italy and the United Kingdom, whereas the French sample includes only limited liability companies.

Bureau Van Dijk also provides similar data bases for Belgium and Luxembourg (BEL-FIRST), Spain (SABE), and the Netherlands (REACH), but time did not permit a detailed analysis of these countries. In the special case of Germany, data was downloaded from the AMADEUS database on leading companies in Europe. Only 43 (relatively large) German firms in this data set comply with our selection criteria. Since this sample is small and very different from the other countries we do not discuss the German case here (see Arjona, Viala and Wagenvoort, 1998, for more on this last country).

The sample was also split into two groups according to the age of the firms at the end of the period. Old French and old UK SMEs existed for more than 10 years in 1996 while old Italian SMEs existed for more than 10 years in 1995. Young SMEs are by definition the ones that were alive for maximum 10 years at the end of the period. There are 132, 192, and 218 young firms in the sample for France, Italy and the UK, respectively.

This data set is not necessarily representative for all SMEs in Europe, since it might be biased towards *sound* companies (survival bias) and to companies with detailed reporting of accounts. Reporting and accounting practices differ from one country to the other. Thus, in order to be able to compare SMEs finance across countries, the harmonisation procedure of Bureau Van Dijk (as given in appendix 2 of the user manual of the AMADEUS database) was used to convert balance sheets and profit and loss accounts into a single format.

**There are broad similarities in balance sheet structure across countries; however, there are also some important differences.**

Figure 1 shows that there are broad similarities in asset structure across countries; however, there are also some important differences. For example, in France, tangible assets account for only 20 percent of the value of total assets compared with about 30 percent in the UK and Italy. Trade debtors take less than one-quarter of the balance sheet in the UK, in comparison to one-third in France and Italy. On the other hand, stocks (inventories) are much larger in the UK (29 percent of assets, compared with 19 percent in France and Italy).

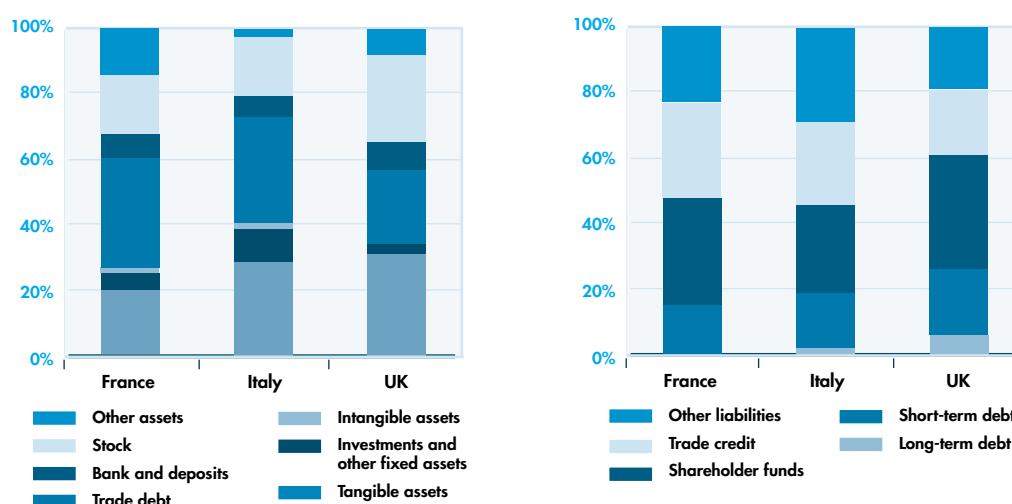
**Table 2.** Median values of SME growth, size and average age

	Annual growth rate of tangible assets	Average size (median size), million ECU	Average age, years
France (1994-96)			
Full Sample	0.89%	2.33 (0.86)	19
Young	6.9%	1.19 (0.61)	6
Old	0.29%	2.61 (1.02)	22
Italy (1993-1995)			
Full Sample	9.7%	13.34 (6.02)	21
Young	13.0%	12.37 (5.18)	6
Old	9.3%	13.51 (6.15)	24
UK (1994-96)			
Full Sample	4.6%	2.45 (0.64)	23
Young	9.9%	1.52 (0.41)	6
Old	3.9%	2.63 (0.71)	26

Notes: The average growth rate of tangible assets is in national currency. It is determined by computing the median value of the firm-level arithmetic averages (over time). Here size equals the total amount of assets.

Figure 1 also shows that the liability side of the balance sheets of SMEs in France, Italy and the UK look quite similar. One of the most striking differences is that British small firms have relatively less trade credit (20 percent of total claims, in comparison to 29 percent and 26 percent in France and Italy, respectively) which mirrors the fact that they have less trade debt. Shareholders funds are relatively small in Italy: only 27 percent of the average Italian balance sheet total consists of shareholder funds, compared to 33 percent in France and 36 percent in the UK.

**Figure 1.** The structure of the average balance sheet of SMEs



Note: Short-term debt has a maturity of less than one year. In the case of France, there is no data on the split between short-term and long-term debt and all French debt is shown as short-term in the figure. Other assets include some financial assets, pre-paid expenses, director loans and other current assets. Other liabilities include customer pre-payments, taxes and other miscellaneous items. Average values are computed over the period 1994-1996 for the United Kingdom and France, and over the period 1993-1995 for Italy.

In line with this, Table 3 shows that the Italian SMEs have higher gearing than French or British small businesses: median gearing, as measured by the debt to capital ratio, is equal to 48 percent in Italy, 33 percent in France, and 31 percent in the UK. In other words, in France and the UK, about one-third of capital consists of bank loans with two-thirds due to shareholder funds, while in Italy, debt determines almost 50 percent of capital. Since Italian SMEs were also less profitable than French and UK small firms (as measured by the ratio of cashflow to net assets), the interest coverage ratio of Italian SMEs was much lower (4). Almost one-half of the cashflow of Italian small companies had to be used to pay interest to their creditors. In France and the UK this figure is considerably smaller. On average, more than 85 percent of the cashflow of French SMEs and around 90 percent of the cashflow of British SMEs could contribute to the build-up of shareholder funds.

**Table 3.** Median values of key balance sheet ratios

	Debt to capital ratio	Interest coverage ratio	Liquidity ratio	Ratio of cashflow to net assets
France (1994-1996)				
Full Sample	0.33	6.7	0.62	0.11
Young	0.32	10.0	0.60	0.14
Old	0.33	6.7	0.62	0.10
Italy (1993-1995)				
Full Sample	0.48	2.1	0.59	0.06
Young	0.40	2.1	0.57	0.07
Old	0.49	2.1	0.60	0.06
UK (1994-1996)				
Full Sample	0.31	12.5	0.66	0.11
Young	0.41	11.1	0.65	0.16
Old	0.30	12.5	0.67	0.10

Note: Capital is equal to the sum of financial debt plus shareholder funds. The interest coverage ratio is equal to the ratio of interest expense plus cashflow to interest expense. Cashflow is defined as profits plus depreciation. The liquidity ratio is defined as liquid assets (financial assets (cash + deposits) plus trade debtors) divided by trade creditors plus liquid assets. Net assets are equal to total assets minus trade credit.

**If establishing a bank relationship is important, older SMEs would have a higher debt to capital ratio. Surprisingly, this ratio actually decreases on average by 11 percentage points in the UK.**

If establishing a sound relationship with a bank increases access to, and lowers the cost of external funding, then one would expect that older SMEs would have a higher debt to capital ratio. Table 3 shows, somewhat surprisingly, that the debt to capital ratio actually decreases on average by 11 percentage points in the UK! In Italy, the opposite happens, and gearing increases by 9 percentage points. France is in the middle with indebtedness remaining constant between young and old SMEs.

4) The fact that Italian firms are less profitable could be another indication that this sample is not the same as in the other two countries, though they could also just be in a different part of the business cycle.



This result could be influenced by changing liquidity. To analyse this a 'liquidity ratio' was constructed, which in our case is defined as:

$$\frac{\text{liquid assets (financial assets (cash plus deposits) plus trade debtors)}}{\text{liquid assets plus current liabilities (trade creditors)}}$$

*Liquidity improves when SMEs become older, but only moderately. This would suggest that a change in liquidity does not, by itself, explain the change in gearing.*

If this liquidity ratio decreases then the amount of trade creditors increases with respect to the sum of trade debtors and financial assets (5). For the full sample, liquidity is highest in the UK and lowest in Italy, though there are not huge differences. The liquidity ratio improves when SMEs become older in each country under investigation, but only moderately. This would seem to suggest that a change in liquidity does not, by itself, explain the change in gearing as companies get older. However, the question why leverage increases for older Italian SMEs, but diminishes for older British SMEs can only be answered by taking into account all the possible determining factors. This could include not only liquidity, but many other factors such as size and profitability. The objective of the next section is to estimate a multiple regression model to identify the possible interaction of all these factors.

### 3. A regression analysis of the factors determining the gearing of SMEs

Arjona, Viala and Wagenvoort (1998) give an extensive literature review of the theoretical arguments that justify a range of explanatory variables of capital structure. A rough argumentation for the variables used in this study is as follows:

- A first group measures the asset structure of the balance sheet to capture the collateral that a company can provide to secure its loans. As suggested by Constand *et al.* (1991), several indicators were used for the asset composition of a company. The first one, the ratio of tangible assets over net assets, measures the level of securable fixed assets of a company. The two other indicators, the ratio of trade debtors (accounts receivable) over net assets, and the ratio of stock (inventories) to net assets, measure the level of current assets.
- Profitability is measured with the ratio of cashflow to net assets. The pecking-order theory predicts a negative sign for the relationship between leverage and profitability.
- The impact on liquidity from current liabilities is captured with the ratio of trade creditors to net assets.
- A fourth group comprises indicators of firm specific factors:
  - There are three types of company from corporations (i.e. Plc in the UK, SA in France, and SpA in Italy), other limited-liability companies (Ltd in the UK, Sarl in France, and Srl in Italy), to proprietorships and partnerships.
  - Managerial ownership is measured as the percentage of total equity held by the managing director.

---

5) This ratio was used instead of the simpler ratio of liquid assets to current liabilities, the so-called "quick" ratio or "acid test", since this is infinite for some companies (having no current liabilities) and poses averaging problems. We also leave short-term bank debt out of this liquidity ratio, since it is included within the gearing ratio used later in the econometric analysis.

- To account for non-linearities, the natural logarithm of the number of years since creation date is used as an indicator of age, and the natural logarithm of net assets is employed as a measure of size (6).
- The ratio of intangible assets to net assets and the annual growth rate of sales are used as indicators of growth opportunities.
- Companies are also grouped in five broad industry sectors (7).

*Many of the variables are simultaneously determined, requiring a non-standard estimation procedure. The explanatory power of the model is high compared to previous studies.*

Many of the explanatory variables of the regression model are simultaneously determined with the dependent variable, i.e. the ratio of bank debt to capital. Profitability, size, growth, tangible assets, stock, average cost per employee, trade creditors and trade debtors are all endogenous factors. Exogenous explanatory variables include the type of the company, management ownership, age, year dummies, and industry category. Regression models with simultaneity require a non-standard estimation procedure. Box 2 contains a brief explanation of the statistical method that has been employed.

The regression results for the full sample in each country and that for younger companies are reported in the Annex (8). Before turning to the country analyses, it should be noted that the results are quite good, with the coefficient of determination (the  $R^2$ ) in the range of 0.27 to 0.38 for the full sample in each country. Obviously, there are many factors that determine the gearing of a particular company, but a notable percentage of the variation in the debt to capital ratio is still captured by the few variables in the regression equations. The explanatory power of the model is high in comparison to previous empirical studies on the capital structure of SMEs.

#### **4. Bank lending to SMEs in the UK**

So what can a more advanced econometric analysis tell us regarding the determinants of the capital structure of SMEs? Table 4 summarises the results for the full sample of SMEs in the UK. The first column gives the estimated coefficient for each of the variables, which are significant (9) in determining gearing (i.e. the ratio of bank debt to capital, with capital defined as shareholders funds plus bank debt). The second column shows the average value of the various explanatory factors for the sample. A simple linear relationship is estimated (see Box 2), so that product of column one and two gives the total impact that each variable has on the gearing of the average company (10). This is shown in the third column. The fourth column shows how each explanatory variable changes on average between young and old companies. For example, the ratio of trade debtors to net assets goes from 52 percent for young companies, to 39 percent for old companies, or a drop of 13 percentage points (i.e. -0.13 in the Table). Multiplying this change by the coefficient in column one gives the impact of each variable as SMEs grow older (see the last column of the Table). This figure is only indicative, since the full sample regression equation may not fit the sub-sample of young companies particularly well. Tables 5 and 6, which contain the results for France and Italy, are constructed in the same way as Table 4.

6) These are the only variables that are not calculated as a ratio.

7) These are: manufacturing, construction, trade/transport/services, education/health, and other.

8) The separate regression results associated with the group of older SMEs are shown in Arjona, Viala and Wagenvoort (1998). Note that most of the sample are older firms.

9) Table A.1 of the Annex gives full statistics for the regression equation.

10) Strictly speaking this only holds if the explanatory variables are independent.

The results show the high influence of tangible assets in determining the level of bank debt held by a company. Other forms of collateral such as stocks (inventories) are also significant, but have a smaller impact on capital structure. For the average small business, tangible assets add 20 percent to the figure for gearing, more than one-half the final level. Interestingly, the level of intangible assets is significant in determining gearing, though the coefficient is small. Therefore, this factor has a negligible effect on the bank borrowings of the average British SME.

**Table 4.** The impact of significant explanatory factors of SME gearing in the UK

	Regression Coefficient	Average value of the variable in the sample	Average impact of the variable on gearing	Difference in average value of the variable between young and old	Difference in average impact of the variable on gearing between young and old
	(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
Constant	0.32		0.32		
<b>Asset structure</b>					
Tangibles over net assets	0.43	0.45	0.19	0	0
Trade debtors over net assets	0.21	0.42	0.09	-0.13	-0.03
Stock over net assets	0.34	0.25	0.09	0	0
<b>Profitability</b>					
Cashflow over net assets	-0.34	0.14	-0.05	-0.07	0.02
<b>Current liabilities</b>					
Trade creditors over net assets	-0.15	0.34	-0.05	-0.10	0.02
<b>Firm specificity</b>					
Ln(age)	-0.08	3.06	-0.25	1.5	-0.12
Intangibles over net assets	0.06	0.01	0	-0.02	0
<b>Total</b>			0.34 (0.36)		-0.11 (-0.10)

Note: Gearing is the ratio of bank debt to capital, with capital defined as shareholders funds plus bank debt. The actual average ratio of bank debt to capital and the actual difference in gearing between young and old SMEs are given in parentheses in column 3 and 5 respectively. The sample period is 1992-1996.

A striking result is the significant and negative terms for profits and for age. This gives credence to the view that the managers of companies prefer retained earnings to bank debt, though the negative coefficient for profits could also arise because more profitable companies are also more risky ventures.

## Box 2. The econometric methodology

The following linear panel data model was estimated:

$$(1) \quad y_{it} = c + z_{it,1}\beta_1 + \dots + z_{it,m}\beta_m + x_{it,1}\beta_{m+1} + \dots + x_{it,k}\beta_{m+k} + \varepsilon_{it}, \quad i = 1, \dots, n \quad t = 1, \dots, T$$

where  $y_{it}$  is the value of the regressand in period  $t$  of firm  $i$ ,  $c$  is a constant,  $z_{it,j}$  is the  $j$ th endogenous explanatory variable,  $x_{it,j}$  is the  $j$ th exogenous explanatory variable,  $\beta$  is a  $m + k$  vector of unknown parameters and  $\varepsilon_{it}$  is the error term. There are  $n$  firms,  $T$  time periods,  $m$  and  $k$  are equal to the number of endogenous and exogenous explanatory variables, respectively.

Many panel data studies include firm specific fixed effects to capture factors which cause a shift in the dependent variable but are not represented by the other explanatory variables. Unfortunately, the number of time periods usually precludes reliable estimation of these unobservable components, i.e. that there are enough time periods to be able to estimate firm dummies. This is the case here. Leaving out the firm specific effects from the regression model means these effects are left to the error terms. This leads to inconsistent parameter estimates if the firm effects are correlated with one of the explanatory variables. Consistent estimates can be obtained by transforming the regression model so as to eliminate these specific effects. For instance, first order differencing of the data or computing within estimates by first subtracting individual means are possible solutions. In this paper, however, the objective is to measure the influence on the financial structure of firm specific effects such as the ownership structure and legal status. Therefore, the unobservable fixed components are not incorporated, since the necessary transformation of the data would also imply elimination of important observable fixed effects. We however, assume that by including these observable fixed effects, the error terms will be orthogonal to the exogenous explanatory variables.

The regressand, the debt to capital ratio, is simultaneously determined by a number of endogenous factors such as the size, profitability or asset structure of the company. Consequently, these explanatory variables are not necessarily orthogonal to the error terms. Ordinary least squares regression in this case will result biased estimates. Instrumental variable techniques are used to obtain consistent estimates of the model. Instruments  $w_{it,j}$  ( $j = 1, \dots, J$ ) are constructed with lagged values of the endogenous variables  $z_{it,j}$ .

The following assumptions are made on the structure of the error terms:

- (i)  $E[\varepsilon_{it}] = 0$
- (ii)  $E[\varepsilon_{it}\varepsilon_{jt}] = 0, i \neq j$
- (iii)  $E[\varepsilon_{it}\varepsilon_{ts}] = \sigma_{ts}$ .

To obtain relatively efficient estimates, the following procedure is adopted: First, Two-Stage Least Squares (2SLS) are applied in order to construct a vector of residuals. The variance-covariance matrix of the model error terms is estimated using these 2SLS residuals along the lines set out by Zellner (1962). Second, the Generalised Method of Moments (GMM, see Hansen, 1982) is used to compute the final estimates. In the latter round, correction is made for autocorrelation using Zellner's (1962) solution while heteroskedastic consistent standard errors are computed following White (1982). GMM is more efficient than 2SLS if the error terms are significantly autocorrelated.

Hansen's (1982) statistic is calculated to test for over-identifying restrictions. As a rule, the first lagged values of the endogenous variables are rejected to be appropriate instruments, but the hypothesis is accepted that instruments of period  $t - 2$  or higher lags are valid for the regressions.

A general-to-specific modelling strategy was adopted. Both the estimation results of the model, which includes all explanatory factors, and the results of the final reduced specification are given in the Annex.

The coefficient for current assets (stocks and trade debtors) are significant and positive, while that for trade creditors is significant and negative. This means that increased liquidity has a significant role in increasing gearing. This is perhaps an unsurprising result. Banks are not only interested in the solvency of their clients, but also that interest payments will be made in a timely way. However the coefficient for current assets is larger than that for trade creditors, suggesting that current assets may also play a role as collateral.

As mentioned before, some have argued that SMEs are forced to use expensive trade credit as a source of finance due to a lack of other options. In so far as the percentage of the bill that is paid late is proportional to the total level of trade credits in the balance sheet, then the significant negative coefficient for this group of creditors could also indicate that there is some substitution between current liabilities and bank debt. In this case we would expect liquidity to improve over time as trade creditors are replaced by other forms of finance. However, recall that in Table 3 we observed no major change in the average liquidity between our young and old sample of companies (the liquidity ratio only increases from 0.65 to 0.67 in Britain). This is because liquid assets are reduced at more or less the same rate as trade creditors, and the overall management of billing seems to improve on both sides of the balance sheet. We conclude from this that the substitution of bank debt with trade credit was of marginal importance (11).

**Older firms have had more time to build up shareholders funds, and they appear to prefer internal funding to outside finance.**

Why does the debt to capital ratio decrease over time? The last column of Table 4 reveals that the decrease in gearing is largely an 'age effect' in the sense that the changes in the impact of the other explanatory factors cancel each other out and are relatively small. Older firms have had more time to build up shareholders funds and, they appear to prefer internal funding to outside finance.

However, a word of caution is due. A widely recognised problem with the interpretation of this type of empirical equation is the fact that the data may be compiled from two types of firms: those which are free to choose their optimal indebtedness given their firm-specific characteristics and the price of credit, and others which are credit rationed. As a consequence, the econometric specification may neither represent how a firm, on average, will optimally adjust its capital structure in response to changes in its profitability, asset structure, etc., nor does it necessarily reveal how the leverage of a constrained firm depends on these factors. For example, the sample of SMEs contains some very small proprietorships and partnerships and the managers of these companies may be extremely risk averse if their private wealth is at stake (12). As a consequence, they may prefer internal funds to outside funding even if the cost of external capital is not excessive. However, not only does total bank debt fall between young and old companies in Britain, but so does long-term debt (13), from 15 percent of net assets to 11½ percent. It seems very unlikely that this represents a choice by risk averse managers (i.e. a demand

---

11) Sorting companies by their liquidity ratio, we find that relatively illiquid companies have lower gearing. At first sight, this would clearly rule out the argument that trade credit and bank loans are substitutes. However, SMEs with a low ratio of trade credit to net assets also have on average a substantially lower ratio of tangible assets to net assets. Given the importance of collateral for lending, we cannot prove beyond a shadow of doubt that SMEs with high liquidity do not substitute trade credit for loans, but it becomes very unlikely. This co-movement with age of several variables underlines the complexity of analyses of this type.

12) Recall from Box 1 that 8 percent of SMEs in the UK sample are proprietorships and partnerships. In Italy these companies account for 13 percent of the sample, while there are no proprietorships and partnerships in the French sample. Partnerships in the service sector (lawyers, doctors, dentists, etc) may have insurance against malpractice, thus diminishing the extent to which personal wealth is at stake.

13) Long-term debt has a maturity of more than one year.

effect). On the whole, we believe that a supply effect dominates the regression results, and that gearing goes down because of a problem of borrowing on terms that reflect a company's true creditworthiness.

If we split out the group of SMEs, which are less than 10 years old, and repeat the regression exercise, then similar results are found (see Table A.2 in the Annex). Tangible assets have a lower coefficient (0.26 instead of the 0.43 for the entire sample) and profits have a greater impact in reducing bank debt (the coefficient for profits is  $-0.45$  instead of  $-0.16$ ). This could indicate that young SMEs have on average slightly more difficulties in obtaining bank loans. However, the general picture remains the same. There is certainly no evidence of a bank-company relationship developing over time whereby the bank gains privileged access to information on the company and thus increases its lending. Information asymmetries appear to limit the role of outside funding for decades.

### 5. Bank lending to SMEs in France

*French bankers seem at least as conservative as their British peers.*

How does this picture compare with that in other countries? French bankers seem at least as conservative as their British peers. Table 5 shows the results with the French sample. The sensitivity of banks to tangible assets is higher than in the UK (see the first column of the Table), and the shift away from bank loans as profitability increases is even more marked.

The significant variables take a different average value in France than in the UK. For example, tangibles are only 26 percent of net assets in France compared with 45 percent in the UK. French companies also carry significantly more current assets and current liabilities. Still, the overall effect on indebtedness (column three of the Table) is somewhat similar in the two countries. Equally, the interpretation of the coefficients for current assets and trade creditors remains much as in the British example.

In the French case, size (the logarithm of net assets) is significant instead of age. However, size and age are highly correlated so it is hard to distinguish between these two variables. The average impact of size ( $-0.20$ ) on gearing for French SMEs is similar to that for age ( $-0.25$ ) on British SMEs. Indeed, overall indebtedness (0.37, or 37 percent of capital) is almost the same as that in the UK.

One difference comes when young and old companies are compared (see the fifth column of the Table). Now the size variable in France plays a much less important role than the age variable in the UK, and the gearing of the average French balance sheet does not change much as companies get older.

Some specific results also emerge from the regression with the sub-sample of younger companies, (see Table A.2. in the Annex for full details). Size ceases to be a significant variable, and there are now significant differences by sector. Construction companies and those in trade and services have higher indebtedness than those in manufacturing (gearing goes up by about 10 percentage points on average for these sectors). The share of management ownership becomes significant for younger companies. A company that is 80 percent owned by its managers would have a gearing that is 10 percent higher than one where managers own only 20 percent of the pie. This is perhaps because the actions of the manager are expected to be more in line with the interest of the company if they own a larger stake in the company (i.e. fewer projects are pursued that do not maximise shareholder value). As a consequence, information problems are less acute and the firm is less financially constrained (see, among others, Jensen and Meckling, 1976). Since the regression equation is quite different for the sub-sample of young firms, care must be taken in using the full sample results to understand what happens as companies age (i.e. in too closely interpreting the figures in column five of Table 5).

*Again company managers have strong preferences for internal sources of finance to support company growth.*

In summary, the full sample results do tell us that SMEs with tangible assets as collateral are much more likely to have access to bank debt, and company managers have strong preferences for internal sources of finance (profits) to support company growth.

## 6. Bank lending to SMEs in Italy

Are bank managers more flexible in Italy? Table 6 shows the results for the full sample of SMEs in this country. They are different from the results for the other two countries. Italian SMEs have considerably higher gearing; however, the regression results indicate that this is not due to their relatively larger average size. The sample also contains, besides medium-sized companies, some very small companies comparable with the ones in France and the UK, and still neither (the logarithm of) net assets nor (the logarithm of) age are significant explanatory factors in the regression.

**Table 5.** The impact of significant explanatory factors of SME gearing in France

	Regression Coefficient	Average value of the variable in the sample	Average impact of the variable on gearing	Difference in average value of the variable between young and old	Difference in average impact of the variable on gearing between young and old
	(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
Constant	0.44		0.44		
<b>Asset structure</b>					
Tangibles over net assets	0.62	0.26	0.16	-0.01	0
Trade debtors over net assets	0.12	0.64	0.08	-0.01	0
Stock over net assets	0.27	0.31	0.08	0.06	0.02
<b>Profitability</b>					
Cashflow over net assets	-0.80	0.13	-0.10	-0.05	0.04
<b>Current liabilities</b>					
Trade creditors over net assets	-0.13	0.56	-0.07	-0.05	0
<b>Firm specificity</b>					
Ln(net assets)	-0.003	6.46	-0.20	0.67	-0.02
Intangibles over net assets	0.04	0.04	0.002	-0.01	0
<b>Total</b>			0.39 (0.37)		0.04 (0.01)

Note: Gearing is the ratio of bank debt to capital, with capital defined as shareholders funds plus bank debt. The actual average ratio of bank debt to capital and the actual difference in gearing between young and old SMEs are given in parentheses in column 3 and 5 respectively. The sample period is from 1992-1996.

Profits are significant in reducing gearing, but the impact is much less than in France or the UK. This does not necessarily mean that the pecking-order theory is less relevant. We have shown in Table 2 that tangible assets of older Italian SMEs keep growing at a higher pace. So it is likely that retained earnings are re-invested rather than being used for lowering the indebtedness of the firm.

As before, tangible assets are significant in determining gearing, but now stocks (inventories) are relatively more important. The total impact of tangible assets and stock on gearing is closer to the combined influence of these variables on the gearing of SMEs in France and the UK (see column 4), and this may suggest a stronger role of current assets as collateral.

**Italian bankers are extremely sensitive to the liquidity of a borrower.**

However, it may also be that Italian bankers are extremely sensitive to the liquidity of a borrower (broadly defined to include stock). Payment periods are much longer in Italy than the other two countries. For example, the European Observatory for SMEs (1997) mentions that more than 80 percent of the SMEs in Italy, about 60 percent of the French SMEs, but less than 30 percent of British SMEs have average payment periods exceeding 60 days. Our data set is consistent with this in that Italian firms have a higher level of trade credits on their balance sheet. On average, trade creditors are 70 percent of net assets in Italy, 56 percent in France, and only 34 percent in the UK. This may mean that it is harder in Italy to distinguish when a company is facing payment difficulties. As a result, increasing liquidity is strongly rewarded by bankers, and there are very large and significant coefficients on both current assets and current liabilities in the regression equation.

Though there is only a modest swing in liquidity between the younger and older companies (the liquidity ratio goes from 0.57 to 0.60 in Table 3), the fifth column of Table 5 shows that improving ratios for trade debt and trade credit is the main reason for the slight increase in leverage of older Italian SMEs. This could mean that trade credits are being used by some young companies to substitute for bank debt, though the evidence is far from convincing (14).

Unlike the UK or France, there are significant differences by the type of company for the full sample of Italian SMEs. As for *young* French SMEs, management ownership has a significant and positive impact on gearing of around 10 percentage points. In the Italian case, type of ownership also matters. Leverage is higher for companies with limited liability. As mentioned before, this result could reflect the desire of the owners of unlimited liability companies (i.e. partnerships and proprietorships) to limit the level of their personal wealth that is at risk (15). The sector of operation is also significant, with construction, trade, transport and services companies having less debt than those in manufacturing (16). Finally, companies with higher average costs per employee have lower indebtedness than the average. This result could arise because higher wages are an indication of more "high-tech" activities, with associated higher uncertainty regarding future profits.

---

14) Rather, the improving ratio of trade debtors to trade creditors is used to dramatically reduce cash holdings and other financial investments.

15) Unlimited liability should provide greater incentives for shareholders to monitor their companies. If this reduces the freedom of managers to act in their own personal interests, then the sign should be the same as that for management ownership. However, this is not the case, and the impact of shareholder risk aversion (or other factors acting in a similar way) would appear to dominate any benefits from better monitoring.

16) Note that younger French SMEs in the construction, trade, transport and services sector have higher debt than manufacturing, an opposite result to this one. There is no systematic sectoral effect across countries.



**Table 6.** The impact of significant explanatory factors of SME gearing in Italy

	Regression Coefficient	Average value of the variable in the sample	Average impact of the variable on gearing	Difference in average value of the variable between young and old	Difference in average impact of the variable on gearing between young and old
	(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
Constant	0.22		0.22		
<b>Asset structure</b>					
Tangibles over net assets	0.23	0.37	0.09	0	0
Trade debtors over net assets	0.24	0.78	0.19	-0.18	-0.04
Stock over net assets	0.32	0.35	0.11	-0.08	-0.02
<b>Profitability</b>					
Cashflow over net assets	-0.16	0.08	-0.01	-0.01	0
<b>Current liabilities</b>					
Trade creditors over net assets	-0.20	0.70	-0.14	-0.43	0.09
<b>Firm specificity</b>					
Plc	0.10	0.47	0.05	0.21	0.02
Ltd	0.16	0.40	0.06	-0.19	-0.03
Average wage/median	-0.05	1.23	-0.06	0.01	0
Management ownership	0.10	0.34	0.03	-0.02	0
Trade, Transport and Services	-0.06	0.32	-0.02	0.02	0
<b>Total</b>			0.52 (0.45)		0.01 (0.03)

*The access to bank debt for young Italian companies could depend more on banking relationships. Curiously, the relationship becomes more determined by financial variables as companies grow older.*

Note: Gearing is the ratio of bank debt to capital, with capital defined as shareholders funds plus bank debt. The actual average ratio of bank debt to capital and the actual difference in gearing between young and old SMEs are given in parentheses in column 3 and 5 respectively. The sample period is from 1992-1995.

Interestingly, the regression for the young Italian SMEs shows quite different results (see Table A.2 in the Annex for full details). Now, trade creditors and trade debtors are not significant variables, the parameter estimate associated with tangibles is insignificant, and the coefficient for stock is much smaller than for the full sample regression. This could suggest that access to bank debt for young companies depends very much on a set of relationships with bankers. Curiously, the banking

relationship appears to become more determined by financial variables as companies grow older. However, these results could be determined by some specific features of the Italian data set, and no clear conclusions can be drawn for this country.

## **7. Conclusions and possible policy issues**

### **Key results from the analysis**

The purpose of this paper has been to explore the factors that determine the gearing of SMEs in Europe. The availability of data together with the time needed to manipulate the raw data is such that we have focused the analysis on three countries – France, Italy, and the UK. From this analysis we hope to gain some understanding of the efficiency of financial markets in supplying debt to small business. Since many factors are potentially involved, a regression analysis is needed to untangle the individual effect of any particular factor.

A striking result is the similarity of the findings for France and the UK. In both countries bankers prefer lending against tangible fixed assets and to companies with higher liquidity. Also in both countries increased SME profitability reduces gearing, as does company age (in the UK) and size (in France). We interpret this to mean that companies use retained earnings to lower the level of bank debt they carry. Obviously, this would only make sense if internal sources of finance were cheaper than debt, due presumably to problems of asymmetric information. There is no evidence of banking relationships developing over time that improve the availability of debt finance.

The Italian results point in different directions and it is difficult to arrive at a clear view. On the one hand, tangible assets are less important in determining gearing, neither age nor size are significant, and changes in profitability have a very modest effect on average gearing. A range of variables such as management ownership and firm type are significant. These results could be taken to suggest that there is greater “relationship” banking in Italy. On the other hand, financial variables are important, and current assets and current liabilities play a key role. Combined, they explain a major share of the gearing of the average company, and appear to be responsible for most of the increase in gearing as firms grow older.

If we leave a question mark over the result for Italy, the other two countries do indicate that the problems of asymmetric information between lenders and borrowers can go on for decades.

### **Policy responses**

A full discussion of the policy issues is far beyond the scope of this paper. Indeed, one possible conclusion of a more in-depth analysis could be that direct public intervention is not appropriate given the specific features of the problem. Here we simply sketch out what the policy responses could be and highlight one or two of the issues.

We certainly cannot say anything from this study about the optimal moment during a company’s life for public support. However, the persistent market failure we observe suggests that support for development capital for mature companies should be kept on the policy agenda for further consideration.

*There is no evidence of a bank-company relationship developing over time, and the problems of asymmetric information between lenders and borrowers go on for decades.*

*This persistent market failure suggests that support for development capital for mature companies should be kept on the policy agenda.*

What could be done? It seems hard to see how the problems of asymmetric information could be dealt with directly, based as they are on the interactions of thousands of private individuals. Instead, the government can compensate SMEs by lowering the cost of finance or by taking on-board some of the credit risks. Neither approach is without serious limitations. The cost of finance can be reduced by tax incentives for banks or by making available cheap credit for them to on-lend. Unfortunately, there are likely to be significant dead-weight losses since not all SMEs merit the same level of subsidy (and the subsidy will be given uniformly, even to those companies who do not need it). Moreover, any such programme must be well-designed to ensure that the benefits do not leak away (e.g. to other categories of borrower or to bank shareholders as increased profits) and the administrative costs of managing the scheme may be considerable. Government guarantees of SME credit risks raise a number of moral hazard issues. They would be more valuable to banks for loans to their more risky customers, and it would be natural for banks to propose these companies as candidates. Again the cost of the scheme would be high, and it would not necessarily support the most efficient outcome. These schemes can be tested and developed where successful, but they are certainly not going to be a general panacea to the problem.

Another approach is to side-step the banking sector completely. This can be done by giving preferential tax treatment to SMEs, essentially increasing retained earnings and internal sources of finance for investment purposes. Alternatively, steps can be taken to encourage external equity investment via IPOs on stock markets (recall we remain interested in development capital for mature enterprises). Again, the tax system is probably the best vehicle to achieve this, but much more analysis of the policy options is needed before any recommendations could be made.

### **Lending and bank restructuring**

This study has looked at balance sheets in the period from 1992 to 1996. The banking sector in Europe is going through major changes with the creation of the Single Market in Financial Services (in 1993) and more recently with the launch of the euro (17). The general expectation is that restructuring will lead to a consolidation of the banking sector, though this is most likely to happen first at the national level rather than through pan-European mergers and acquisitions. Will this have an impact on SMEs in the future?

The US banking market has also seen considerable consolidation over the last decade. A clear relationship has been established in that country between bank size and SME lending, with large banks devoting a lesser proportion of their assets to small business loans. Some observers have interpreted this to mean that bank consolidation will be harmful for SMEs (see for example, Berger, *et al.*, 1995).

Large banks may lend less to small businesses since they have a range of other business opportunities (such as investment banking) that are not available to smaller institutions. They may also be less successful at processing a personal knowledge of small companies. Information on lending decisions must be summarised in a form that can flow through a large hierarchical organisation, and staff may move from office to office, taking with them local knowledge. Therefore, large banks are likely to rely more on financial ratios and credit scoring for SME loan approvals, rather than on a previous knowledge of the borrower. This theory of organisational dis-economies

---

17) This was the topic of the last edition of the EIB Papers. See the inside back cover for further details.

*The problems identified in this paper will not naturally disappear due to the Single Market.*

is convincing, but it should only apply to SMEs that rely on relationship banking. Logically, small businesses with strong financial statements and with valuable collateral should have just as much access to loans from large complex organisations as from smaller locally focused banks.

Can this study shed any light on this debate? Our results show that the access to credit is similar for both French and British SMEs. Indeed, the average gearing of SMEs in the two countries is almost the same. At the same time, there has been relatively more restructuring of the banking sector in the UK than in France (18). This suggests that restructuring may have little impact on SME lending in some countries exactly because of the paucity of relationship lending. This is an excessively simplistic analysis, and the important question of whether SMEs will be effected by European bank restructuring merits further analysis. However, it seems safe to conclude that the problems identified in this paper will not naturally disappear due to the Single Market.

---

18) As an associated result, a recent EIB study has found that banks in the UK are more efficient than in France (Wagenvoort and Schure, 1999).

**Table A1.** GMM estimation results, full sample

Regressand	Financial Debt over Capital					
	France		Italy		United Kingdom	
Country	1995-96	1994-96	1994-95	1995-96	1994-96	
Sample Period						
Instruments	t-2		t-2		t-2	
Number of companies	658		1283		1374	
Endogenous Explanatory Variables (t-values are in parentheses)						
Profits (after tax) over net assets	-0.837 (-5.21)	-0.801 (-6.09)	-0.155 (-9.08)	-0.155 (-9.28)	-0.288 (-2.73)	-0.344 (-3.51)
Ln(net assets)	-0.026 (-2.46)	-0.031 (-4.37)	-0.129 (-1.12)		-0.019 (-0.36)	
Tangibles over net assets	0.644 (9.02)	0.617 (10.14)	0.242 (3.28)	0.228 (3.00)	0.453 (12.10)	0.432 (13.77)
Avg. compensation per employee over median	-0.002 (-0.36)		-0.040 (-1.80)	-0.047 (-2.08)	-0.062 (-0.57)	
% change in sales	-1.305 (-0.88)				-0.045 (-0.29)	
Intangibles over net assets	0.044 (4.40)	0.042 (5.12)	0.005 (0.22)		0.063 (5.89)	0.062 (5.82)
Trade creditors over net assets	-0.126 (-3.41)	-0.125 (-4.74)	-0.212 (-3.05)	-0.204 (-2.89)	-0.152 (-4.49)	-0.147 (-4.92)
Trade debtor over net assets	0.135 (2.96)	0.122 (3.52)	0.246 (2.84)	0.239 (2.70)	0.232 (5.86)	0.213 (6.24)
Stock over net assets	0.279 (5.84)	0.268 (7.60)	0.330 (3.58)	0.320 (3.51)	0.354 (9.36)	0.336 (10.31)
Exogenous Explanatory Variables (t-values are in parentheses)						
Constant	0.450 (3.58)	0.442 (5.56)	0.376 (2.13)	0.224 (2.35)	0.256 (4.35)	0.316 (7.11)
Ln(age)	-0.294 (-2.04)		-0.136 (-1.09)		-0.779 (-7.52)	-0.803 (-8.71)
Plc, Sa, SpA			0.104 (3.36)	0.098 (3.19)	0.036 (1.57)	
Ltd, Sarl, Srl			0.151 (4.85)	0.163 (5.24)		
Manager ownership, percentage	0.015 (0.42)		0.092 (3.31)	0.102 (3.85)		
Construction	0.044 (1.61)		-0.199 (-3.90)	-0.199 (3.87)	0.037 (1.78)	
Trade, Transport and Services	0.019 (0.87)		-0.063 (-3.41)	-0.059 (-3.35)	0.017 (1.23)	
Education and Health	0.420 (9.83)	0.418 (16.25)	-0.194 (-3.77)	-0.214 (-4.38)	0.015 (0.36)	
Other	-0.185 (-2.74)	-0.206 (-3.30)	0.042 (0.61)		-0.062 (-1.98)	-0.086 (-3.35)
Time dummy 1996	-0.016 (-1.48)				0.007 (1.02)	
Time dummy 1995			0.035 (3.90)	0.033 (3.90)		
Adjusted R2	0.43	0.38	0.38	0.38	0.27	0.27
Hansen's (1982) Test on Overidentifying Restrictions						
Instruments: t-1, t-2	42.62		51.81		30.84	
Instruments: t-2 t-3	6.13		9.34		9.79	

**Table A2.** GMM estimation results, young companies

Regressand	Financial Debt over Capital					
	France		Italy		United Kingdom	
Country	France		Italy		United Kingdom	
Sample Period	1994-96		1994-95		1994-96	
Instruments	t-2		t-2		t-2	
Number of companies	132		192		218	
Endogenous Explanatory Variables (t-values are in parentheses)						
Profits (after tax) over net assets	-0.758 (-4.17)	-0.809 (-4.29)	-0.169 (-0.72)	-0.161 (-4.17)	-0.274 (-1.88)	-0.445 (-2.82)
Ln(net assets)	-0.140 (-0.71)		-0.347 (-0.16)		0.198 (1.59)	
Tangibles over net assets	0.681 (5.62)	0.653 (5.66)	0.184 (0.21)		0.302 (3.56)	0.260 (4.13)
Avg. compensation per employee over median	0.040 (1.15)		-0.199 (-0.60)	-0.186 (-4.83)	-0.120 (-0.48)	
Intangibles over net assets	0.029 (1.94)		-0.034 (-0.18)		0.041 (2.70)	0.031 (2.25)
Trade creditors over net assets	-0.060 (-2.29)	-0.035 (-2.36)	-0.242 (-0.32)		-0.139 (-1.31)	
Trade debtors over net assets	0.031 (0.60)		0.279 (0.28)		0.140 (1.34)	
Stock over net assets	0.190 (3.15)	0.164 (2.73)	0.349 (0.35)	0.050 (2.77)	0.300 (3.16)	0.253 (4.58)
Exogenous Explanatory Variables (t-values are in parentheses)						
Constant	0.170 (0.73)	0.138 (2.70)	0.185 (0.05)	0.280 (2.76)	0.228 (1.48)	0.378 (3.54)
Ln(age)	0.311 (0.42)		1.344 (0.21)		-1.092 (-1.73)	-0.875 (-2.04)
Plc, SA, Spa			0.274 (0.48)	0.268 (3.28)	0.126 (2.80)	0.122 (2.86)
Ltd, Sarl, Srl			0.244 (0.43)	0.271 (3.37)		
Manager ownership, percentage	0.135 (2.20)	0.176 (3.19)	0.170 (0.29)	0.185 (2.38)		
Construction	0.122 (2.62)	0.113 (2.38)	-0.008 (-0.02)		0.065 (1.15)	
Trade, Transport and Services	0.104 (2.77)	0.099 (2.50)	-0.091 (-0.24)		0.001 (0.04)	
Education and Health	0.392 (7.05)	0.385 (8.00)			-0.065 (-0.80)	
Other	-0.439 (-9.10)	-0.459 (-9.25)	0.152 (0.23)		-0.007 (-0.09)	
Time dummy 1996	-0.032 (-1.17)				0.004 (0.15)	
Time dummy 1995	0.006 (0.38)	0.035 (0.18)			-0.015 (-0.80)	
Adjusted R2	0.50	0.50	0.57	0.32	0.22	0.32

## References

- Angelini, P., Di Salvo, R. and Ferri, G. (1997) "Availability and cost of credit for small business: Customer relationships and credit co-operatives". Mimeo, Research Department, Banca d'Italia.
- Arjona, R., Viala, P. and Wagenvoort, R. (1998). "Small Business Finance and the European Financial Environment: Some Empirical Evidence". *Economic and Financial Reports*, 98/03, European Investment Bank, Luxembourg.
- Berger, A.N. and Udell, G.F. (1995). "Relationship lending and lines of credit in small firm finance", *The Journal of Business*, 38(3), pp. 491-515.
- Berger, A.N., Kashyap, A.K. and J.M. Scalise (1995). "The transformation of the US banking industry: What a long, strange trip it's been", *Brookings Papers on Economic Activity*, 2, pp 55-218, 1995.
- Boot, A.W.A. and Thakor, A.V. (1994). "Moral Hazard and Secured Lending in an Infinitely Repeated Credit Market Game", *International Economic Review*, 35(4), pp. 899-920.
- Constand, R.L., Osteryoung, J.S. and Nast, D.A. (1991). "Asset-Based Financing and the Determinants of Capital Structure in the Small Firm". In Yazdipour, R. (ed.): *Advances in Small Business Finance*. Amsterdam: Kluwer Academic Press, pp. 29-45.
- Degryse, H. and Van Cayseele, P. (1998). "Relationship Lending within a Bank-Based System: Evidence from European Small Business Data". Working paper, Tilburg University.
- European Observatory for SMEs (1997). *Fifth Annual Report*. Co-ordinated by the Small Business and Research Consultancy, PO Box 7001, 2701 Zoetermeer, The Netherlands.
- Fazzari, S., Hubbard, R.G. and Petersen, B. (1988a). "Finance Constraints and Corporate Investment". *Brookings Papers on Economic Activity*, 1, pp. 141-195.
- Fazzari, S., Hubbard, R.G. and Petersen, B. (1988b). "Investment, Financing Decisions, and Tax Policy", *The American Economic Review*, 78, pp. 200-205.
- Greenbaum, S.I., Kanatas, G. and Venezia, I. (1989). "Equilibrium Loan Pricing under the Bank-Client Relationship". *Journal of Banking and Finance*, 13(2), pp. 221-235.
- Hansen, L.P. (1982). "Large Sample Properties of Generalised Method of Moments Estimators". *Econometrica*, 50(4), pp. 1029-1054.
- Jaffee, D.M. and Russell, T. (1976). "Imperfect Information, Uncertainty, and Credit Rationing", *Quarterly Journal of Economics*, pp. 651-666.
- Jensen, M.C. and Meckling, W. (1976). "Theory of the Firm: Managerial Behaviour, Agency Costs, and Capital Structure". *Journal of Financial Economics*, 3 (4), pp. 305-360.
- Modigliani, F. and Miller, M.H. (1958). "The Cost of Capital, Corporate Finance and the Theory of Investment", *The American Economic Review*, XLVIII (3), pp. 261-297.

- Myers, S.C. and Majluf, N.S. (1984). "Corporate Financing and Investment Decisions when Firms have Information that Investors do not have". *Journal of Financial Economics*, 13(2), pp. 187-221.
- Petersen, M. A. and Rajan, R. (1994). "The Benefits of Lending Relationships: Evidence from Small Business Data". *Journal of Finance*, 49(1), pp. 3-37.
- Sharpe, S.A. (1990). "Asymmetric Information, Bank Lending, and Implicit Contracts: A Stylized Model of Customer Relationships". *Journal of Finance*, 45(4), pp. 1069-1087.
- Stiglitz, J.E. and Weiss, A. (1981). "Credit Rationing in Markets with Imperfect Information". *The American Economic Review*, 71 (3), pp. 393-410.
- Wagenvoort, J.L.M. and Schure, P. (1999). "Who are Europe's efficient bankers?" *EIB Papers*, 4 (1), pp. 105-126, European Investment Bank, Luxembourg.
- Walker, D.A. (1991). "An Empirical Analysis of Financing the Small Firm". In Yazdipour, R. (ed.): *Advances in Small Business Finance*. Amsterdam: Kluwer Academic Press, pp. 47-61.
- White, H. (1982). "Instrumental Variables Regression with Independent Observations". *Econometrica*, 50(2), pp. 483-499.
- Zellner, A. (1962). "An Efficient Method of Estimating Seemingly Unrelated Regressions and Tests of Aggregation Bias". *Journal of the American Statistical Association*, 57, pp. 348-368.